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Perceived Physical Literacy Scale for Secondary School Students: A Study on Validity and Reliability

Mehmet AKARSU[1*], Mehmet GÜLLÜ[2] Yahya DOĞAR[3]
[1]Inönü University, Malatya, Türkiye

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Abstract

The purpose of this research is to develop a physical literacy scale for secondary school students. 650 students from 5th, 6th, 7th and 8th grades participated in the research. The draft form was prepared by reviewing the literature and taking expert opinions. Interviews were conducted with 40 students to test the comprehensibility of the items (the wording of 5 items was revised). As a result of the pilot reliability analysis and Bartlett's sphericity test, it was accepted that the correlation between the variables was sufficient, and the scale consisted of questions with a unique and homogeneous structure. Then, Kaiser-Meyer-Olkin, Bartlett and Cronbach Alpha values were checked, and they were determined to be suitable and sufficient for EFA. As a result of EFA, 20 items collected in 4 factors were obtained. The variance explained by these factors is 58.442%. As a result of the CFA conducted in SPSS AMOS 24 programme, 3 items that did not meet the model fit index criteria were removed. It was determined that the standardized item loadings of the 17 items that met the model fit conditions ranged between 0.654-0.895, R^2 values ranged between 0.43-0.80 and standard errors ranged between 0.045-0.102. Regarding reliability, AVE, CR, and internal consistency coefficients were examined, and it was determined that they meet the specified criteria. The final version of the scale consists of four sub-dimensions ("Motivation", "Knowledge and Understanding", "Confidence" and "Physical Competence"). In conclusion, it was determined that the developed scale is a valid and reliable measurement tool for assessing students' perceptions of physical literacy.
Keywords: Physical literacy, Physical activity, Physical education and sports, Secondary school students

Ortaokul Öğrencileri için Algılanan Fiziksel Okuryazarlık Ölçeği: Geçerlilik ve Güvenirlilik Çalışması

Öz

Bu araştırmanın amacı, ortaokul öğrencileri için fiziksel okuryazarlık ölçeği geliştirmektir. Araştırmaya 5,6,7 ve 8. Sınıflardan 650 öğrenci katılmıştır. Taslak form literatür taraması ve uzman görüşleri alınarak hazırlanmıştır. Maddelerin anlaşılırlığını test etmek için 40 öğrenciyle görüşmeler yapılmıştır (5 maddenin ifadeleri yeniden düzenlendi). Pilot güvenirlilik analizi ve Bartlett's küresellik testi sonucunda değişkenler arası korelasyonun yeterli olduğu, ölçeğin özgün ve homojen yapıda sorulardan oluştuğu kabul edilmiştir. Ardından Kaiser-Meyer-Olkin, Barlett ve Cronbach Alfa değerleri kontrol edilerek AFA için uygun ve yeterli oldukları tespit edilmiştir. AFA sonucunda 4 faktörde toplanan 20 madde elde edilmiştir. Bu faktörlerin açıkladığı varyans %58.442'dir. SPSS AMOS 24 programında yapılan DFA sonucunda ise, model uyum indekslerini karşılamayan 3 madde çıkarılmıştır. Model uyum şartlarını taşıyan 17 maddenin standartlaştırılmış madde yükleri 0,654-0,895 arasında; R2 değerleri 0,43-0,80 arasında ve standart hataları 0.045-0.102 arasında değiştiği tespit edilmiştir. Güvenirlilik kapsamında ise AVE, CR ve iç tutarlık katsayıları incelenmiş ve koşulları sağladığı belirlenmiştir. Ölçek son haliyle 4 alt boyuttan ("Motivasyon", "Bilgi ve Anlayış", "Güven" ve "Fiziksel Yeterlilik") oluşmaktadır. Sonuç olarak, geliştirilen ölçeğin, öğrencilerin fiziksel okuryazarlık algılarını ölçen, geçerli ve güvenilir bir ölçme aracı olduğu tespit edilmiştir.
Anahtar kelimeler: Fiziksel okuryazarlık, Fiziksel aktivite, Beden eğitimi ve spor, Ortaokul öğrencileri

[*] **Corresponding Author:** Research Assistant Mehmet Akarsu, **E-mail:** mehmet_akarsu@inonu.edu.tr

INTRODUCTION

Throughout human history, the instinctive need for movement has been deeply ingrained, with physical activity serving as a fundamental tool for maintaining internal balance. This intrinsic drive has persisted from the evolutionary past of humanity to the present day, playing a crucial role in ensuring survival. However, with the advent of modern technological and social changes, sedentary lifestyles have become increasingly prevalent. Therefore, individuals have drifted away from the physical activity they naturally require. As a result, the rise in sedentary behaviour has had adverse effects on people's physical health and overall well-being, underscoring the heightened significance of physical literacy (Belanger et al., 2018).

Numerous scientific research outcomes and international organizations reveal the necessity for individuals to remain physically active throughout their lifespan. Physical literacy encompasses multifaceted development such as knowledge and understanding, motivation, confidence, and physical competence which are essential for individuals to stay active throughout their lives (Akarsu & Büyükçelebi, 2022; McKean, 2013; Sum et al., 2018). In this context, Whitehead (2013) defines physical literacy as the motivation to value and take responsibility for purposeful physical activities lifelong, involving confidence, physical competence, knowledge, and understanding.

Physical literacy should not be regarded as equivalent to physical activity, rather, it is considered a significant precursor to physical activity. In this sense, individuals may not engage in physical activity without possessing or understanding physical literacy. However, by participating in physical activities, individuals can enhance their levels of physical literacy (Whitehead, 2001). Building upon these notions, the United Nations Educational, Scientific and Cultural Organization (UNESCO) emphasizes the crucial role of quality physical education in school curricula, as it forms the basis for lifelong physical activity and sports participation. Individuals who are physically literate through quality physical education classes adapt to the changing environment by participating in physical activities, increasing confidence in areas requiring physical, mental, sensory, and social skills (UNESCO, 2015). As evident from these considerations, physical literacy is recognized as an integral component of individual personality development, encompassing a broad spectrum of skills.

In the past two decades, the assessment of physical literacy has predominantly focused on demonstrating fundamental movement skills or determining sport-specific abilities (Longmuir, 2017). Such assessments provide a limited interpretation of the level of physical literacy (Giblin et al., 2014). Lundvall (2015) has argued that this restricted assessment of physical literacy is insufficient to grasp the complexity of the concept and aspects the evaluation of other aspects of physical literacy. For instance, assessing other qualities of physical literacy, such as competence in physical movement competence and knowledge and understanding of how to be physically active, the knowledge and understanding of being active, the desire for physical activity, and possessing the motivation and confidence necessary for it, is imperative (Corbin, 2016).

Several measurement tools developed for this purpose are identified in the literature. Sum et al., (2016) created the Perceived Physical Literacy Scale for physical education teachers. This scale is designed to assess teachers' perceived physical literacy in terms of knowledge and

understanding, self-confidence, self-expression, and communication with others. Munusturlar & Yıldızer (2020) adapted the Perceived Physical Literacy Scale for physical education teachers, developed by Sum et al., (2016), for a sample in Türkiye. Sum et al., (2018) developed the Perceived Physical Literacy Scale for adolescents. Yılmaz & Kabak (2021) also developed the Perceived Physical Literacy Scale for adolescents. Özgül et al., (2023) developed the Physical Literacy Attitudes Scale for secondary school students. When all these studies are examined, it is noted that there is a lack of specific research focusing on measuring the perceived physical literacy of secondary school students.

The physical literacy of secondary school students is critical for their potential to become active individuals in the future. Being aware of this importance, a measurement tool is needed to evaluate the physical literacy perception of secondary school students. Accordingly, the aim of this study was to develop a perceived physical literacy scale for secondary school students, considering the importance of fostering physical literacy at this educational level in order to raise active individuals in the future.

MATERIAL AND METHODS

Research Model

This study employs a survey design for the development of a scale. The survey design aims to define a condition that has existed in the past or continues to exist in its own terms without making any changes (Büyüköztürk, 2009). Therefore, a survey design was preferred for this research.

Study Group

The study group comprises 650 secondary school students attending 5th, 6th, 7th, and 8th grades in Malatya in 2023. Students with no physical health issues, specific diseases (such as heart, respiratory, or neurological diseases), and musculoskeletal system disabilities were included in the research.

1. Study group: The first study group, comprising 40 students in total (20 males, 20 females), was determined using a random sampling method to test the clarity of the items. The group tense 10 students from the 5th grade (5 males, 5 females), 10 students from the 6th grade (5 males, 5 females), 10 students from the 7th grade (5 males, 5 females), and 10 students from the 8th grade (5 males, 5 females).

2. Study group: The second study group, consisting of 310 students in total (165 males, 145 females), was selected using a random sampling method for conducting Exploratory Factor Analysis (EFA). The group tense 72 students from the 5th grade (38 males, 34 females), 81 students from the 6th grade (41 males, 40 females), 69 students from the 7th grade (39 males, 30 females), and 88 students from the 8th grade (47 males, 41 females).

3. Study group: The third study group, comprising 266 students in total (140 males, 126 females), was chosen using a random sampling method for conducting Confirmatory Factor Analysis (CFA). The group tense 65 students from the 5th grade (35 males, 30 females), 58

students from the 6th grade (28 males, 30 females), 66 students from the 7th grade (36 males, 30 females), and 77 students from the 8th grade (41 males, 36 females).

4. Study group: The fourth study group, consisting of 34 students in total, was determined using a simple random sampling method for collecting data for the test-retest reliability analysis. The group tense 8 students from the 5th grade (4 males, 4 females), 8 students from the 6th grade (4 males, 4 females), 8 students from the 7th grade (4 males, 4 females), and 10 students from the 8th grade (5 males, 5 females).

Perceived Physical Literacy Scale for Secondary School Students Scale Structure

The scale, designed for secondary school students, includes items that aim to measure their perceptions of key aspects of physical activity, including knowledge and understanding, motivation, confidence and physical competence. The knowledge and understanding sub-dimension is related to the capacity of individuals to grasp basic concepts and principles related to physical activity, health and fitness. The motivation sub-dimension relates to an individual's tendency to participate in physical activity and the drive to continue these activities. Highly motivated individuals may maintain an active lifestyle due to various factors such as health, fitness, personal goals or social interaction. The self-confidence sub-dimension is related to the positive belief in one's own physical abilities. This enables individuals to engage in physical activities without hesitation to take risks and to participate in new activities with confidence. Additionally, confidence in physical literacy includes the individual's belief that they can succeed in activities such as sports and exercise, which encourages them to stay active on a regular basis. Finally, the physical competence sub-dimension relates to an individual's physical capacity to perform at a certain level. This includes physical characteristics such as strength, endurance, flexibility and coordination, as well as specific movement and sport skills. Physical competence enables an individual to move effectively and efficiently in daily life and sporting activities, while also promoting health and well-being. In accordance with this framework, responses were obtained based on a 5-point Likert scale, wherein the options are delineated as follows: "1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, and 5= Strongly Agree". Higher score on the items suggests a greater degree of concurrence with the proposition contained within each item, while lower scores indicate a lesser degree of concurrence.

Ethical Approval

Approval for the implementation of the scale was obtained from the Inönü University Social and Humanities Research and Publication Ethics Commission on 04-05-2023, with decision number 57 in session 3. Additionally, after obtaining approval from the Malatya Provincial Directorate of National Education, informed voluntary consent forms were obtained from the parents/guardians of the participants.

Analysis of Data

The analysis of the data collected within the review of the study was conducted step by step. Firstly, a draft form was created by scanning the literature and obtaining expert opinions. The construct validity rate and construct validity index were examined for the validity of the form's structure. Hotelling's T-Squared and Bartlett's sphericity test were applied for pilot reliability. Then, Exploratory Factor Analysis (EFA) was applied to the collected data. After EFA, the

data were collected again with the remaining items and Confirmatory Factor Analysis (CFA) was applied. After CFA, the data were collected again and Composite Reliability (CR), Average Variance Extracted (AVE) and Cronbach's Alpha Coefficient were calculated. Additionally, data were collected within the scope of test-retest reliability.

FINDINGS

Development of the Measurement Tool

Designing the Scale and Creating the Draft Form

The scale items were prepared through the literature review (Mohammadzadeh et al., 2021; Munusturlar & Yıldızer, 2020; Özgül et al., 2023; Sport for Life, 2023; Sum et al., 2018; Sum et al., 2016; Yılmaz & Kabak, 2021) and expert opinions on physical literacy, child development, and measurement and evaluation. Initially, existing development studies were examined through a literature review, and an item pool was created. Subsequently, face-to-face interviews were conducted with students in the first study group to test the clarity of the items. As a result of these interviews, expressions in five items of the 29-item pool were reorganized.

Content Validity

The Content Validity Ratio (CVR) is used in measurement tool development studies where pilot applications are not feasible. CVR is a method used to transform qualitative data into quantitative data by using expert opinions (Yurdugül, 2005). The CVRs were calculated for the items in the scale form by taking the opinions of 8 experts knowledgeable about physical literacy, child development, measurement and evaluation" is better. In calculating CVR, values were assigned to each item, half of the experts must state that the substance is suitable for a value of 0, more than half must state that the substance is not suitable for a value less than 0, and that the substance is not suitable if it is greater than 0" is better. When calculating CVR, items with negative or equal to 0 values were first excluded from the scale. Subsequently, items with CVRs greater than 0 were analyzed. According to Veneziano and Hooper (1997) the minimum values for content validity criteria are provided in the table below (Table 1).

Table 1. Minimum values for content validity ratios

Number of Experts	Minimum Value	Number of Experts	Minimum Value
5	0.99	13	0.54
6	0.99	14	0.51
7	0.99	15	0.49
8	0.78	20	0.42
9	0.75	25	0.37
10	0.62	30	0.33
11	0.59	36	0.30
12	0.56	40+	0.29

According to Table 1, the minimum values, according to the number of experts consulted, also indicate the significance level of the item. In this study, consulting 8 experts reveals that the minimum value for the content validity criterion is 0.78. The Content Validity Index (CVI) is obtained from the total CVR average of the items to be included in the final scale form and has a significance level of $\propto = 0.05$ (Yurdugül, 2005).

Based on the CVRs obtained from expert opinions, 3 out of 29 items were removed, and seven were changed. Consequently, the CVRs for items 5, 8, 12, 14, 15, 20, and 26 were calculated as 0.90, and for other items, the CVRs were calculated as 1.0. After removing these items (5, 8, 12, 14, 15, 20, and 26) mentioned for CVI calculation, the calculation was repeated, and a value of 1.0 was obtained. The obtained CVI value from the final form, with opinions from 8 experts, can be considered high and statistically significant, as CVI > 0.78.

Pilot Reliability

Hotelling's T-Squared analysis and Bartlett's sphericity test were examined to determine the degree determine how effectively the structure intended to be measured could be measured with the developed measurement tool. In the Hotelling's T-Squared analysis, the Hotelling's T-Squared value was found to be 501.358, the F value was 18.497, and the p-value was less than 0.05. The result of Bartlett's sphericity test being less than 0.05 and statistically significant indicates sufficient correlation among variables. Therefore, it can be accepted that the scale consists of homogeneous structure questions and is original.

Validity: EFA and CFA

Before proceeding with EFA and CFA procedures, a normality test was conducted on the data. Since the skewness and kurtosis values were between -1.5 and 1.5, it was assumed that the data followed a normal distribution (Tabachnick et al., 2013). Based on this result, EFA was conducted.

The Kaiser-Meyer-Olkin (KMO) test value, which evaluates the suitability of the data for EFA was found to be 0.876, and the Barlett Test value was 3201.334 ($p<.001$). Additionally, the internal consistency coefficient (Cronbach's Alpha) was determined as 0.854. According to the results obtained, it was understood that the data were suitable and sufficient for EFA (Bayram, 2004). As a result of item analysis, were 4 (I enjoy participating in physical activities that challenge me), 7 (I consider it necessary to participate in physical activity to stay healthy), 11 (I know the benefits of physical activity), 12 (I prefer studying instead of participating in physical activity), 13 (I am aware of the skills in physical activities where I am lacking), and 26 (I maintain my balance very well in physical activities) were excluded as their communalities were below 0.30. Accordingly, 20 items collected in four factors were considered for evaluation. The variance explained by the four factors is 58.442%. As noted in the studies of Çokluk et al., (2012) explaining between 40% and 60% of the variance is considered sufficient for multi-factor scales.

Table 2. Explained total variance

Factor	Eigenvalue	Total variance explained		Sum of Rotated Factor Loadings
		Variance %	Cumulative Variance %	
1.	5.168	25.842	25.842	3.717
2.	3.014	15.068	40.910	2.900
3.	2.329	11.644	52.554	2.636
4.	1.178	5.888	58.442	2.436

According to Table 2, it is observed that items with eigenvalues greater than 1 are grouped within 4 factors. Yaşlıoğlu (2017) suggests that factors with eigenvalues exceeding 1 can be considered statistically significant. When the Kaiser criterion (eigenvalue>1) is examined, it is seen that it can explain 58.442% of the variance. Furthermore, the rotated factor loadings

indicate values of 3.717 for the 1st factor, 2.900 for the 2nd factor, 2.636 for the 3rd factor, and 2.436 for the 4th factor.

Table 3. Rotated component matrix and item total correlations

Items	1	2	3	4	Item Total Correlations
Item 1		0.674			0.503
Item 2		0.777			0.534
Item 3		0.712			0.471
Item 5		0.687			0.280
Item 6		0.694			0.524
Item 8				0.634	0.474
Item 9				0.495	0.443
Item 10				0.623	0.320
Item 14				0.654	0.426
Item 15				0.751	0.341
Item 16	0.793				0.334
Item 17	0.856				0.487
Item 18	0.871				0.550
Item 19	0.851				0.537
Item 20	0.880				0.511
Item 21			0.810		0.342
Item 22			0.737		0.290
Item 23			0.694		0.402
Item 24			0.703		0.244
Item 25			0.559		0.245

When examining Table 3, the first factor consists of items 16, 17, 18, 19, 20; the second factor consists of items 1, 2, 3, 5, 6; the third factor consists of items 21, 22, 23, 24, 25, and the fourth factor consists of items 8, 9, 10, 14, 15. When examination of the total correlations among items, it is observed that they range between 0.503 and 0.245.

The 20 items obtained from EFA were loaded into the AMOS 24 program for CFA analysis. The results of the CFA analysis are presented in Table 4.

Table 4. Confirmatory factor analysis results

Model Fit Indices	First Level	Perfect Fit Criterion	Acceptable Fit Criterion
X^2	190.461	$0 \leq X^2 \leq 2sd$	$2sd \leq X^2 \leq 3sd$
Sd	113		
X^2/Sd	1.685	$0 \leq X^2/sd \leq 2$	$2 \leq X^2/sd \leq 3$
p	0.000	$0.05 \leq p \leq 1.00$	$0.01 \leq p \leq 0.05$
RMSEA	0.047	$0.00 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.08$
GFI	0.935	$0.95 \leq GFI \leq 1.00$	$0.90 \leq GFI \leq 0.95$
AGFI	0.912	$0.90 \leq AGFI \leq 1.00$	$0.85 \leq AGFI \leq 0.90$
NFI	0.929	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI \leq 0.95$
RMR	0.070	$0 \leq RMR \leq 0.05$	$0.05 \leq RMR \leq 0.08$
CFI	0.970	$0.95 \leq CFI \leq 1.00$	$0.90 \leq CFI \leq 0.95$
IFI	0.970	$0.95 \leq IFI \leq 1.00$	$0.90 \leq IFI \leq 0.95$

In the CFA results, the X^2 value is 190.461, with a degree of freedom (df) of 113, and X^2/df ratio of 1.685. The p-value is 0.000, RMSEA value is 0.047, GFI value is 0.935, AGFI value is 0.912, NFI value is 0.929, RMR value is 0.070, CFI value is 0.970, and IFI value is 0.970. According to many experts, these values indicate that the model meets the acceptable fit conditions (Bayram, 2004; Bayram, 2010; Erkorkmaz et al., 2013; Hair et al., 1998; Şimşek, 2007).

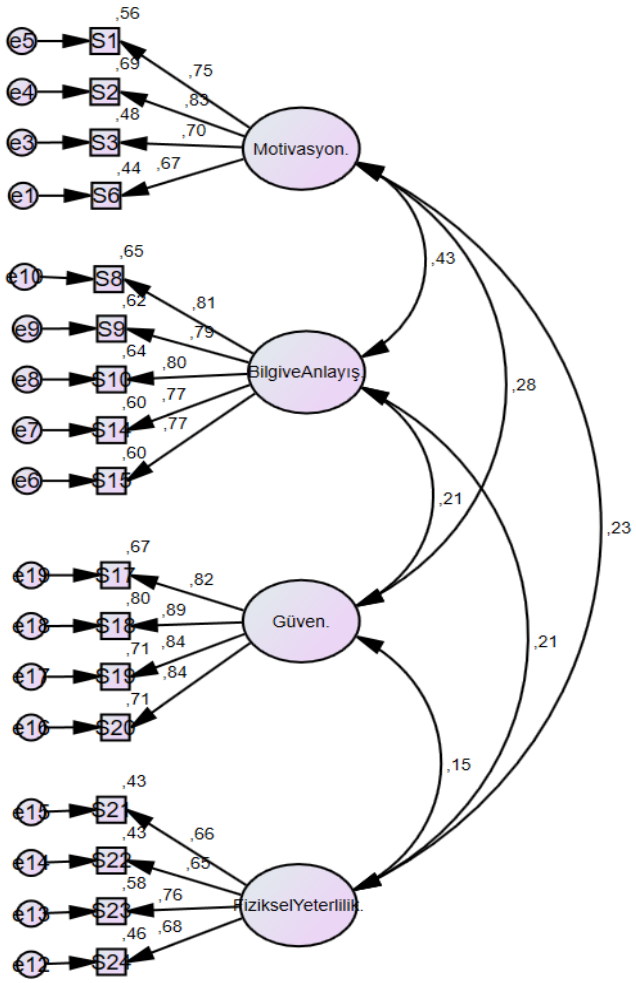

Figure 1. Standardized factor loadings of the scale items obtained from confirmatory factor analysis.
Note: Motivasyon: motivation; Bilgi ve anlayış: knowledge and understanding; Güven: confidence; Fiziksel yeterlilik: physical competence.

In Figure 1, it can be observed that the scale items have standardized loadings ranging from 0.65 to 0.89.

Table 5. Item analysis results

Item Number	Item Number in Draft Scale	Standardized Item Loadings (β1)	R^2 (β2)	Standard Error
1	Item 1	0.745	0.56	0.056
2	Item 2	0.831	0.69	0.050
3	Item 3	0.695	0.48	0.064
4	Item 6	0.665	0.44	0.068
5	Item 8	0.809	0.65	0.061
6	Item 9	0.790	0.62	0.069
7	Item 10	0.802	0.64	0.066
8	Item 14	0.772	0.60	0.070
9	Item 15	0.773	0.60	0.069
10	Item 17	0.821	0.67	0.057
11	Item 18	0.895	0.80	0.045
12	Item 19	0.844	0.71	0.056
13	Item 20	0.844	0.71	0.049
14	Item 21	0.657	0.43	0.102
15	Item 22	0.654	0.43	0.101
16	Item 23	0.759	0.58	0.093
17	Item 24	0.681	0.46	0.099

According to Table 5, the standardized item loadings of the 17 items range between 0.654 and 0.895, R^2 values range between 0.43 and 0.80, and standard errors range between 0.045 and 0.102. When examining the results of EFA and CFA, it can be concluded that the 17-item physical literacy scale is valid according to many experts (Bayram, 2004; Meydan & Şeşen, 2011; Şimşek, 2007).

Scale Reliability

For the reliability of the scale, internal consistency coefficient, AVE, and CR values were examined. Additionally, the scale was applied to the 4th study group consisting of 34 students with a 30-day interval using the test-retest method.

According to the reliability results, for the motivation dimension, the Composite Reliability (CR) value for the motivation dimension 0.82, the AVE value was 0.54, and the Cronbach's Alpha coefficient was 0.821, for the knowledge and understanding dimension, CR value was 0.89, AVE value was 0.62, and Cronbach's Alpha coefficient was 0.892, for the confidence dimension, CR value was 0.91, AVE value was 0.72, and Cronbach's Alpha coefficient was 0.913; and for the physical competence dimension, CR value was 0.78, AVE value was 0.47, and Cronbach's Alpha coefficient was 0.782. Experts suggest that all CR values should be greater than AVE values, and AVE value should be greater than 0.5 (Yaşlıoğlu, 2017), which is satisfied by the obtained results. Moreover, experts indicate that the internal consistency coefficient should be 0.70 or higher (Bayram, 2004; Büyüköztürk, 2009), and the obtained values were observed to be above 0.70. Finally, the reliability coefficient of the data obtained in the test-retest was examined. Accordingly, the reliability coefficient was 0.75 for the motivation dimension, 0.82 for the knowledge and understanding dimension, 0.81 for the confidence dimension, and 0.80 for the physical competence dimension. All these findings indicate the reliability of the developed scale.

DISCUSSION AND CONCLUSION

The aim of this study is to develop a valid and reliable scale to determine the perceived levels of physical literacy of secondary school students. The measurement tool developed this study consists of four sub-dimensions that reveal secondary school students' perceptions of their own physical literacy. These sub-dimensions are motivation, knowledge and understanding, confidence, and physical competence.

The draft form prepared in the study, the draft form prepared based on the literature and expert opinions was presented to the experts for content and scope review. In the analysis performed using the Lawshe technique, three items were excluded from evaluation because it was determined that they measured the same feature as another item. Additionally, seven items were changed in line with expert opinions.

In the context of pilot reliability, the created form was applied to 310 students, and then, then the students' grades were determined by examining Hotelling's T-Squared value (501.358), F value (18.497) and p value ($p<0.05$). The developed measurement tool effectively measures the desired structure. The Bartlett’s sphericity test result was also scrutinized, confirming the

adequacy of inter-variable correlations. Based on these results, it was concluded that the scale consists of homogeneous items and is original.

To assess the suitability of the obtained data for EFA, the Kaiser-Meyer-Olkin (KMO) test value, Bartlett's Test value, and Cronbach's Alpha value were examined, and their suitability and adequacy for EFA were confirmed. In the item analysis, items 4, 7, 11, 12, 13, and 26 were removed from the draft form consisting of 26 items. Therefore, 20 items collected in four factors were considered for evaluation, explaining a variance of 58.442%. Subsequently, the 20 items obtained from the EFA results were applied to the second study group. In the CFA results, items 5, 16, and 25 were excluded. After removing these items, fit indices were checked (X2= 190.461, df= 113, X2/df= 1.685, p= 0.000, RMSEA= 0.047, GFI= 0.935, AGFI= 0.912, NFI= 0.929, RMR= 0.070, CFI= 0.970, and IFI= 0.970), and it was concluded that they met the model fit conditions. Additionally, it was found that the standardized item loadings of the 17 items ranged from 0.654 to 0.895, R2 values ranged from 0.43 to 0.80, and standard errors ranged from 0.045 to 0.102. Through exploratory and confirmatory factor analyses conducted for validity, the 17-item perceived physical literacy scale for secondary school students was found to be valid (Bayram, 2004; Meydan & Şeşen, 2011; Şimşek, 2007). Regarding reliability, the AVE, CR, and internal consistency coefficients of the scale's sub-dimensions were examined, demonstrating that reliability conditions were met.

The final version of the scale consists of four sub-dimensions. The first sub-dimension is called '*Motivation*,' the second sub-dimension is '*Knowledge and Understanding*,' the third sub-dimension is '*Confidence*,' and the fourth sub-dimension is '*Physical Competence*.' The scale, rated on a 5-point Likert scale, ranges from 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree to 5= Strongly Agree. The lowest score from the scale is 17, while the maximum score is 85.

The research findings indicate that the developed scale is a valid and reliable measurement tool in assessing students' perceived physical literacy. Teachers, coaches, researchers, and stakeholders can utilize the perceived physical literacy scale for secondary school students.

Conflicts of Interest: The authors declare that they have no conflict of interest.

Authors' Contribution: Author/s' contribution to the research should be explained in this section. Research Design-MG, Data Collection-MA, statistical analysis-MA; MG, Preparation of the article, MA; MG; YD.

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APPENDIX. Perceived Physical Literacy Scale for Secondary School Students

		Kesinlikle Katılmıyorum	**Katılmıyorum**	**Kararsızım**	**Katılıyorum**	**Kesinlikle Katılıyorum**
	Motivation					
1.	I enjoy participating in physical activities where I acquire new knowledge.	(1)	(2)	(3)	(4)	(5)
2.	I enjoy participating in physical activities where I acquire new skills.	(1)	(2)	(3)	(4)	(5)
3.	Engaging in physical activities makes me happy.	(1)	(2)	(3)	(4)	(5)
4.	I enjoy participating in physical activities that I can do.	(1)	(2)	(3)	(4)	(5)
	Knowledge and Understanding					
5.	Physical activities are a part of my life.	(1)	(2)	(3)	(4)	(5)
6.	I understand concepts related to physical activity (physical education, sports, etc.).	(1)	(2)	(3)	(4)	(5)
7.	Physical activities help me solve problems I encounter.	(1)	(2)	(3)	(4)	(5)
8.	I research things I am curious about regarding physical activity.	(1)	(2)	(3)	(4)	(5)
9.	I pay great attention to healthy eating.	(1)	(2)	(3)	(4)	(5)
	Confidence					
10.	I always have sufficient motivation to participate in physical activities.	(1)	(2)	(3)	(4)	(5)
11.	Participating in physical activities boosts my self-confidence.	(1)	(2)	(3)	(4)	(5)
12.	Learning new movement skills doesn't take me long.	(1)	(2)	(3)	(4)	(5)
13.	I don't worry about participating in physical activities I haven't tried before.	(1)	(2)	(3)	(4)	(5)
	Physical Competence					
14.	I consider myself skillful in physical activities.	(1)	(2)	(3)	(4)	(5)
15.	I can apply newly learned movement skills in different settings.	(1)	(2)	(3)	(4)	(5)
16.	I can perform challenging (complex) movements.	(1)	(2)	(3)	(4)	(5)
17.	I am quite good at object control movements, such as throwing and catching a ball or hitting a ball with a racket.	(1)	(2)	(3)	(4)	(5)

Ek. Ortaokul Öğrencileri için Algılanan Fiziksel Okuryazarlık Ölçeği

		Kesinlikle Katılmıyorum	**Katılmıyorum**	**Kararsızım**	**Katılıyorum**	**Kesinlikle Katılıyorum**
	Motivasyon					
18.	Yeni bilgiler edindiğim fiziksel aktivitelere katılmaktan hoşlanırım.	(1)	(2)	(3)	(4)	(5)
19.	Yeni beceriler edindiğim fiziksel aktivitelere katılmaktan hoşlanırım.	(1)	(2)	(3)	(4)	(5)
20.	Fiziksel aktivitelere katılmak beni mutlu eder.	(1)	(2)	(3)	(4)	(5)
21.	İyi olduğum fiziksel aktivitelere katılmaktan hoşlanırım.	(1)	(2)	(3)	(4)	(5)
	Bilgi ve Anlayış					
22.	Fiziksel aktiviteler hayatımın bir parçasıdır.	(1)	(2)	(3)	(4)	(5)
23.	Fiziksel aktivite ile ilgili kavramları (beden eğitimi, spor vs) anlarım.	(1)	(2)	(3)	(4)	(5)
24.	Fiziksel aktiviteler karşılaştığım problemleri çözmeme yardımcı olur.	(1)	(2)	(3)	(4)	(5)
25.	Fiziksel aktiviteyle ile ilgili merak ettiklerimi araştırırım.	(1)	(2)	(3)	(4)	(5)
26.	Sağlıklı beslenmeye çok dikkat ederim.	(1)	(2)	(3)	(4)	(5)
	Güven					
27.	Fiziksel aktivitelere katılım için her zaman yeterli motivasyona sahibim.	(1)	(2)	(3)	(4)	(5)
28.	Fiziksel aktivitelere katılmak kendime olan güvenimi artırır.	(1)	(2)	(3)	(4)	(5)
29.	Yeni hareket becerilerini öğrenmem uzun sürmez.	(1)	(2)	(3)	(4)	(5)
30.	Daha önce denemediğim fiziksel aktivitelere katılmaktan endişelenmem	(1)	(2)	(3)	(4)	(5)
	Fiziksel Yeterlilik					
31.	Fiziksel aktivitelerde kendimi yeterince becerikli bulurum.	(1)	(2)	(3)	(4)	(5)
32.	Yeni öğrendiğim hareket becerilerini farklı ortamlarda uygulayabilirim.	(1)	(2)	(3)	(4)	(5)
33.	Zorlayıcı (karmaşık) hareketleri yapabilirim.	(1)	(2)	(3)	(4)	(5)
34.	Top atma-tutma, raket topa vurma gibi nesne kontrolü gerektiren hareket becerilerinde oldukça iyiyimdir.	(1)	(2)	(3)	(4)	(5)